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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/003,123

11/26/2001

Andrew G. Swales

SAA-5-2

6275

7590

04/19/2007

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EXAMINER

DENNISON, JERRY B

ART UNIT

PAPER NUMBER

2143

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

04/19/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

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Office Action Summary	Application No.	Applicant(s)	
	10/003,123	SWALES ET AL.	
	Examiner	Art Unit	
	J. Bret Dennison	2143	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 January 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Action is in response to the Amendment for Application Number 10/003,123 received on 1/29/2007.
2. Claims 11-30 are presented for examination.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 11-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5,862,391 to Salas in view of US Patent 5,375,070 to Hershey in further view of US Patent 5,757,924 to Friedman.
5. Regarding Claims 11-14, 22-25 & 30, Salas discloses a network communication system, (Abstract; Col. 57, lines 30-67; Cols. 58-62), comprising:
 - a master device for exclusively initiating a request message, (Col. 2, lines 3-12);
 - an input/output slave device being exclusively responsive, (providing a response message), to the request message header, (per pending Claim 13), exclusively initiated by the master device, (per pending Claim 14), (Col. 2, lines 3-32; Col. 6, lines 21-36; Cols. 23-25 and Col. 26, lines 36-

- 65), (Examiner notes that Salas discloses a configuration functionality wherein it would have been obvious to configure exclusive relationships between network components providing notification for the same as needed. Specifically, Examiner notes that a slave device obviously requires knowledge of its master device, which knowledge would be included within communication parameters set up during configuration);
- an adapter device directly attached to a body of the slave device, the adapter device comprising an interface circuit for transmitting a response message to the master device in response to the request message, the response message correlating to an output received from the slave device, the adapter device configured to directly attach to an in-data port and an out-data port of the body of the slave device, (Col. 2, lines 3-32; Col. 6, lines 21-36; Cols. 23-25 and Col. 26, lines 36-65);
 - an Ethernet module wherein the control processing unit is directly attached to a factory automation unit, (Fig. 2; Fig. 3; Col. 10, lines 15-67; and Col. 11, lines 1-18); and
 - an optimal communication stack protocol utilized to communicate the request message and the response message between the master and the adapter devices, (Col. 6, lines 5-45), the optimal protocol comprising:
 - an IP protocol, (Abstract; Fig. 3; and Col. 2, lines 26-32);
 - a TCP protocol, (Abstract; Fig. 3; and Col. 2, lines 26-32); and

an application layer MODBUS protocol, (per pending Claims 12 & 25), wherein the building and parsing of the pre-calculated response message is responsive to a first part, or predetermined index of the request message, (Abstract; Fig. 3; Col. 2, lines 26-32; and Col. 26, lines 36-65).

6. As noted herein above, Salas discloses optimizing a MODBUS/TCP/IP stack, (Col. 6, lines 5-45), however, Salas does not specifically disclose or describe optimizing a MODBUS/TCP/IP stack with a "finite state machine" that takes advantage of a priori assumptions, (per pending Claim 24). Hershey discloses the use of finite state machines for performance optimization, (Col. 18, lines 37-48). The motivation to substitute the optimized MODBUS/TCP/IP stack of Salas with the finite state machine of Hershey is to provide an architecture and method for applying a real time feedback control to the logical or physical network behavior of a complex data communications network, (Hershey, Col. 3, lines 48-51).

7. Salas in view of Hershey is relied upon for those teachings disclosed herein. Salas discloses the use of TCP protocol; however, Salas does not exclusively utilize the pre-registered TCP port number 502 selected from a plurality of TCP ports, (pending Claims 22 and 30), wherein any message not transmitted via the TCP port number 502 is ignored, (pending Claim 23). Friedman discloses a network device wherein a firewall/router decides whether to pass a packet based on the source and/or destination IP address and the TCP port number, (Friedman - Col. 3, lines 62-67 and Col. 4, line 1), wherein the decision could obviously be based on the use of TCP port number 502.

8. To incorporate the filtering method of Friedman into the Salas apparatus would have been obvious to one of ordinary skill in the art at the time of invention by Applicant as indicated within the teachings of Salas. The motivation to combine is found within the Salas teachings pertaining to a port byte, indicative of which port a gateway message is to be transmitted on, (Salas - Col. 6, lines 26-28). As Salas provides a method for distinguishing transmission by port number, the enumeration of a specific port number, (like 502), would have been obvious, particularly in light of the use of a MODBUS protocol, (as taught by Salas), which obviously utilizes port 502. Thus, Claims 11-14, 22-25 & 30 are found to be unpatentable over the combined teachings of Salas, Hershey & Friedman.

9. Regarding Claims 15, 27 and 28, Salas, Hershey and Friedman are relied upon for those teachings disclosed herein. Salas further discloses a network communication system comprising a set of predetermined response messages including at least one predetermined response message, each predetermined response message being distinguishable by the first part of the request message wherein the predetermined response message is determined from the content of the first part of the request message and rapidly selected from the optimal communication stack for quickly responding to the request message, (Salas - Col. 6, lines 5-36). Examiner notes that protocols such as MODBUS, TCP/IP and Commnet obviously if not inherently comprise predetermined response messages. Thus, Claims 15, 27 and 28 are found to be unpatentable over the combined teachings of Salas, Hershey & Friedman.

10. Regarding Claims 16-20, Salas, Hershey and Friedman are relied upon for those teachings disclosed herein. Salas further discloses protocols such as MODBUS, TCP/IP, Ethernet and Commnet, which obviously if not inherently comprise predetermined response messages including, an address resolution protocol request message, an Internet control management protocol request message, a TCP connection request message, a TCP disconnect request message or a MODBUS request message as a TCP data frame, (Salas - Col. 6, lines 5-45 and Col. 29, lines 28-43). Thus, Claims 16-20 are found to be unpatentable over the combined teachings of Salas, Hershey & Friedman.

11. Regarding Claims 21, 26 and 29, Salas, Hershey and Friedman are relied upon for those teachings disclosed herein. Salas further discloses a network communication system wherein each device limits its message to a length that is less than both a TCP transaction length and a maximum transmission unit, (Col. 2, lines 20-32 and Col. 6, lines 5-36). Examiner notes that since Salas uses TCP/IP, the limitation of message length would be obviously if not inherently compatible with the TCP/IP protocol. Thus, Claims 21, 26 and 29 are found to be unpatentable over the combined teachings of Salas, Hershey & Friedman.

Response to Arguments

11. Applicant's arguments filed 15 June 2006, have been fully considered but they are not persuasive.

Applicant argues, "The Modus concentrator of Salas does not transmit a response message to the master device... on a pre-registered TCP port selected from a plurality of TCP ports.

Examiner respectfully disagrees.

This argument has already been addressed in the previous office action dated, 7/27/2006. The Examiner concurs with the findings of the previous Examiner.

In addition, Examiner would like to point out that communication using the Modbus protocol is at the application layer. Therefore such communication would require the abstraction layers below the application layer. Therefore a predetermined TCP port must be used. Otherwise, proper communication would not occur.

Applicant argues that the prior art "doest not disclose the claimed feature of 'an adapter device directly attached to a body of the slave device.'

Examiner respectfully disagrees.

Figure 2 of Salas shows the Modbus concentrator to be directly attached to the slave devices.

It is the Examiner's position that Applicant has not yet submitted claims drawn to limitations, which define the operation and apparatus of Applicant's disclosed invention in manner, which distinguishes over the prior art.

Failure for Applicant to significantly narrow definition/scope of the claims and supply arguments commensurate in scope with the claims implies the Applicant intends broad interpretation be given to the claims. The Examiner has interpreted the claims

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with scope parallel to the Applicant in the response and reiterates the need for the Applicant to more clearly and distinctly define the claimed invention.

Conclusion

Examiner's Note: Examiner has cited particular columns and line numbers in the references applied to the claims above for the convenience of the applicant.

Although the specified citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner.

In the case of amending the claimed invention, Applicant is respectfully requested to indicate the portion(s) of the specification which dictate(s) the structure relied on for proper interpretation and also to verify and ascertain the metes and bounds of the claimed invention.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not


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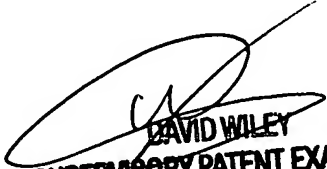
mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to J. Bret Dennison whose telephone number is (571) 272-3910. The examiner can normally be reached on M-F 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David A Wiley can be reached on (571) 272-3923. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


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